Oral Presentation (WAAC-3)

Acute Bacterial Meningeoencephalitis in Stranded Juvenile Green Turtle (*Chelonia Mydas*) in Gerokgak Beach, Buleleng Regency, Bali

Ida Ayu Dian Kusuma Dewi[1*], Yustisia Semarariana[2], I Bagus Made Bhaskara[3],Dwi Suprapti[4], Maulid Dio Suhendro[5], Fidry Rahmanda Ikhwan[6].

[1]Dr.Bhas' Veterinary Service, Denpasar Bali, [2]Kedonganan Vet Clinic, Bali, [3]Rumah Sakit Hewan Udayana, Bali, [4-6] Purnama Vet Clinic
[*]iadiankusuma@iamflyingvet.org

Keywords:, bacterial, infection, meningoencephalitis, sea turtle, stranded.

INTRODUCTION

Bacterial infection in sea turtles has been rarely recorded as a primary disease in wild turtles. Non-specific clinical sign and presumably interrelation with parasitic disease as the primary cause of illness in wild sea turtle are more common particularly affecting the respiratory and integumentary system(George, 1996). Bacterial infection that reach the brain are usually preceded by heavy and chronic infestation of neuroparasitic and cardiovascular parasitic infection in green turtle (Raidal, Ohara, Hobbs, & Prince, 1998). Furthermore, report on acute bacterial meningoencephalitis which lead to sudden death has never been reported before. Interestingly, acute death in stranded sea turtle is usually attributed with bio toxin and human-related trauma(Orós, Torrent, Calabuig, & Déniz, 2005).

CASE REPORT

In January 2018, a juvenile female green sea turtle (*Chelonia mydas*) was found floating near shore in Gerokgak waters, Buleleng regency, bali. The curve carapace width (CCW) of this green turtle was 62cm and the curve carapace length (CCL) was 57.5cm. Prior to this stranding event, fish bombing and poisoning which leads to unknown scale of damage in the area had been reported and thus, it was presumably thought as one of the likely cause of death. Due to the absence of clinical history, post mortem investigation adapted from Flint (2009) was performed to identify and observe pathological changes.

RESULT AND DISCUSSION

The sea turtle had a relatively satisfactory body condition with no prominent sign of dehydration. External trauma leading to death was ruled out as penetrating wound and hematoma were absent. Internal organ showing fair preservation state with mild to moderate decomposition (category D3). Most organs showed mild hyperaemia with no remarkable pathological changes. In the left atrioventricular septae, there was a round white-friable mass (caseous-like material) measuring 2-5mm. Microscopically, some organs such as liver, lungs, kidney had autolysed and thus, could not been observed further. In the brain tissue, a mild ingression of heterophils with colonies of negative gram bacteria was seen particularly in the meninges and superficial part of the grey matter.

The cause of mortality of the sea turtle found in Gerokgak waters is relatively difficult to conclude. This is due to the lacking of lab test supposedly took place at that time of investigation. The distant location of stranding and analytical and pathology laboratories was the primary factor which disabled the writer to conduct further assay on some time-limited sample such as gastric content and blood culture. However, information which related to mortality in this case has been obtained from histopathological examination and anecdotal information gathered at the stranding site. Sudden death in juvenile sea turtle can be rare occurrence in the wild. In some published literature which discuss stranding events of sea turtle, parasitic infection such as *Spirorchidiasis* (blood fluke) accounted as 98% of the cases and thus setting it the most relatable cause of mortality (Gordon, 2005). The parasitic infection usually occurs chronically and is commonly to co-occur with bacterial infection(Orós et al., 2005). In this case, since sign of parasitical infection could not be distinguished both grossly and microscopically, there is a potential the bacterial meningitis may occur solely as a single fatal infection. Such infection can be fatal as it may cause incoordination and failure to thrive which eventually disabling the animal to seek food. Bacterial meningoencephalitis in sea turtle are mostly reported due to *Salmonella,* sp., and *Corynebacterium* sp., (Fichi et al., 2016; George, 1996). The diagnosis could have been conclusive if the blood and tissue swab culture was performed.

CONCLUSION

The cause of mortality of stranded juvenile

green turtle (*Chelonia mydas*) in Gerokgak waters may attributed to bacterial infection in the brain. This usually occurs with preceding heavy parasitical infection in the organ. However, sign of such infection could not be appreciated both grossly and microscopically from the animal. The autolysed organ and failure to perform further test has also limited the diagnosis and thus it is made solely on the histopathological examination result.

REFERENCES

[1] Fichi, G., Cardeti, G., Cersini, A., Mancusi, C., Guarducci, M., Di Guardo, G., & Terracciano, G. (2016). Bacterial and viral pathogens detected in sea turtles stranded along the coast of Tuscany, Italy. *Veterinary microbiology, 185*, 56-61.

[2] George, R. H. (1996). 14 Health Problems and Diseases of Sea Turtles. *The biology of sea turtles, 1*, 363.

[3] Gordon, A. N. (2005). A necropsy-based study of green turtles (Chelonia mydas) in south-east Queensland.

[4] Orós, J., Torrent, A., Calabuig, P., & Déniz, S. (2005). Diseases and causes of mortality among sea turtles stranded in the Canary Islands, Spain (1998–2001). *Diseases of aquatic organisms, 63*(1), 13-24.

[5] Raidal, S., Ohara, M., Hobbs, R., & Prince, R. (1998). Gram-negative bacterial infections and cardiovascular parasitism in green sea turtles (Chelonia mydas). *Australian Veterinary Journal, 76*(6), 415-417.